

Universal Collection and Submission of Consumer Information

The Ad Hoc Information Committee

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I. INTRODUCTION

The Commission is examining its consumer data collection and submission requirements as one phase of an Order Instituting Rulemaking (OIR) and may increase or decrease requirements on various categories of market participants. Existing requirements are placed primarily on utilities, both electric and natural gas. However, changes that have occurred in the electric industry, and that may occur in the natural gas industry, necessitate a review of, and possible adjustment to, the Commission's data collection regulations.

The procedural framework for the OIR has been established by the following activities.

In June 1998, the Ad Hoc Committee, which was established to guide the OIR, issued a report resolving issues about the Commission's authority to collect data and establishing several principles that the Committee proposed to use in guiding the OIR activities¹. On June 24, 1998, the Commission adopted the key findings and principles of this report.

The Ad Hoc Information Committee issued a draft report proposing a scope and schedule for the remainder of the OIR proceeding in late June 1998. A final version of the Scoping Report was issued July 28, 1998² and the Committee issued a Scoping Order on July 30, 1998 that announced a schedule of activities for the OIR, including the collection of consumer energy information.

An overview of the Commission's consumer data needs was presented in a staff paper issued on September 4, 1998³ which will be discussed at an opening workshop scheduled for September 29, 1998. This paper discussed the four categories on consumer data: (1) electric and natural gas usage, (2) retail customer characteristics, (3) market characteristics, and (4) projections of key variables.

This paper expands on the September 4th paper's discussion of the electric and natural gas usage category of consumer data. This paper has been prepared to (1) describe the energy consumer information acquired by universal collection and submission and (2) facilitate discussion of the collection, processing, and submission of this energy consumption data to the Commission.

A. Background

¹ CEC Ad Hoc Information Committee, **Report on the Energy Market Information Proceedings**, Docket 97-DC&CR-1, June 12, 1998.

² CEC Ad Hoc Information Committee, **Scoping Report Describing Resumption of the Rulemaking**, Docket 97-DC&CR-1, July 28, 1998.

³ CEC Staff, **Consumer Information Needs to Support Monitoring and Policy Assessment Functions**, Docket 97-DC&CR-1, September 4, 1998.

Since 1976, the Energy Commission has collected consumption and revenue data on natural gas and electricity at the aggregated end-use customer level for all customers in the state. This data has been collected through the Quarterly Fuel and Energy Report (QFER) regulations.⁴ The QFER database is unique in its level of detail. It allows examination of monthly consumption of energy in the state by various geographic regions and by over 2,000 customer categories. This level of detail allows for regional analysis and combined energy/economic analyses because the data is collected on a county and Standard Industrial Classification (SIC) code basis.

Energy consumption data has been and will continue to be critical in helping the Commission evaluate California's energy systems, design and evaluate market transformation programs, and assess the impacts of industry restructuring on various customer sectors in the state. Energy consumption data, received by the QFER process, forms the core database for these analyses.

Energy consumption and revenue data by geographic area and SIC code is an essential input into the development of projections of regional energy demand prepared annually by the Staff and most recently used in the Independent System Operators (ISOs) Section 350 reliability study. The information is critically needed for retail market analyses to monitor the evolving competitive electricity and natural gas markets.

The advent of electric industry restructuring influences both the nature of consumer energy information that the Commission needs as well as the responsibilities of incumbent and new retail service providers.

B. Purpose for this Paper

This paper has been written to facilitate discussion of the universal collection and submission of energy consumption data to the Commission. As discussed on pages 17 and 18 in Staff's September 4, 1998 paper, *Consumer Information Needs to Support Monitoring and Policy Assessment Functions*, a universal system implies that there are certain data elements that are essential for all customers and that these data will be collected and maintained for the entire customer population. Generally, there are two universal data collection methods: (1) accounting system extracts and (2) customer database dumps.

Accounting system extracts is a process that requires a retailer to use its customer master file, its billing system, or other customer account-based databases as the source of information that is reported to the Commission. The extracts reported to the Commission are the result of aggregating individual customer data by relevant variables, such as county and SIC code.

Customer database transfers are simply downloads to electronic media of individual, not aggregated, customer account data for the entire population of customers.

⁴ QFER regulations are contained in Title 20 of the California Code of Regulations (CCR), Section 1304.

The Committee's June 1998 paper clearly establishes the principle that all entities performing similar functions in the industry should be required to submit comparable information to the Commission. Staff interprets this principle to mean that energy retailers, whether incumbent utility distribution companies or electric service providers, should submit comparable information about energy consumption from the universe of their customers.

II. ACCOUNTING SYSTEM EXTRACTS

Accounting system extracts is a process that requires a retailer to use its customer master file, its billing system, or other customer account-based databases as the source of information that is reported to the Commission. This database is presumably a combination of data variables that the entity already included for its own business reasons, such as tariff and county, as well as other variables that it has been required to obtain about its customers, such as SIC code. The accounting systems extracts process combines this customer database with software that performs aggregations and manipulations needed to generate the reports required. Compliance with a systems extract requirement simply means that the software is periodically run against the current database and results are provided to the Commission. In effect, the Commission's information requirements are extracted from the customer accounting system once each quarter with individual customer data from the database aggregated across variables of interest like SIC code and county.

The accounting extracts system is the process currently used for the majority of the energy consumption data that the Commission receives. There are two major categories of extract system data that the Commission currently receives. The first is electricity and natural gas consumption by end-use customers. The second is natural gas supply and demand data that is used in modeling the natural gas system in the state. The following section discusses the various types of extract data in both of these categories that the Commission receives under current regulations.

A. Electricity and Natural Gas Consumption by End Users

Energy consumption includes not only retail sales to end-use customers by electricity retailers—utility distribution companies (UDCs) and electricity service providers (ESPs)—but also on-site consumption by small power producers and gas customers served directly by non-utility providers.

Currently, more than 250 entities provide some form of electricity and natural gas consumption data to the Commission.

Table 1 shows the number and categories of entities and the detail of the data provided in the 4 main QFER energy consumption forms.

Table 1

Energy Consumption Data Collected by QFER

	Form 4	Form 5	Form 10A	Form 11	Form 12
Energy Type	Electricity and Natural Gas	Electricity and Natural Gas	Natural Gas	Electricity	Natural Gas
Companies Submitting Data	UDCs and ESPs	UDCs and ESPs	Gas Producers and Marketers	Non-Utility Electric Generators	Non-Utility Electric Generators
Number of Reporting Companies	60	13	50	130	130
Detail of Data Filed					
Number of Accounts	Yes	Yes	Yes	No	No
Energy Use	Yes	Yes	Yes	Yes	Yes
Revenues	Yes	Yes	No	No	No
County	No	Yes	Yes	No	No
Data Frequency	Monthly	Annual	Annual	Annual	Annual
Filing Frequency	Quarterly	Annually	Annually	Annually	Annually

Form 4

Form 4, *Electric/Gas Utility Monthly Sales/Deliveries by SIC Code*, provides monthly data on the sales of electricity and deliveries (i.e., sales and transport) of natural gas to end-use consumers. The number of accounts, sales and deliveries, and revenues are reported classified by SIC code and by utility service area. There are currently 60 utilities who are required to file Form 4 and the reports are filed quarterly.

Form 5

Form 5, *Electric/Gas Utility Annual Sales by SIC Code and County*, provides annual data on electricity sales and natural gas deliveries, accounts, and revenues—classified by SIC code and county. Out of the 60 utilities with sales to end use customers there are 13 utilities that provide service in more than one county and, hence, are required to provide this information to the Commission.

Form 10A

Form 10A, *Gas Producers/Marketer Annual Report*, complements the information provided on Form 5 from utilities on the deliveries of natural gas by SIC and county by collecting data on gas deliveries by non-utility gas producers and by marketers delivering gas over non-utility pipelines. The number of accounts and deliveries are reported by county and by SIC code. There are currently 50 entities that are required to file Form 10A and the reports are filed annually.

Form 11

Form 11, *Non Utility Use of Generated Electricity*, provides monthly data on electricity generation by non utility generation facilities. The requirement to report covers only facilities with installed capacity of at least 10 megawatts and that either (1) burn fossil fuels or (2) do not furnish all of their generation to an electric utility. This information is needed to account for the significant segment of statewide demand that is supplied by on site generation. There are currently 130 facilities that are required to report this information.

Form 12

Form 12, *Non Utility Use of Fossil Fuels For Generation*, provides monthly data on the consumption of fossil fuels for electricity generation by non utility generation facilities that are required to report Form 11.

In addition to the forms above which are provided by end-use customers, there are three additional QFER forms related to estimates of self generation. Form 13 requires electric utilities to estimate on site generation produced by units that do not report Form 11. Form 14 requires natural gas utilities to provide estimates of gas used for self generation for units not reporting directly Form 11 to the Commission. Form 15 requires electric utilities to provide the Commission with a list of all self generators in their service area with at least 10 MW of installed capacity.

B. Natural Gas Supply and Distribution System in California

Analysis of California's natural gas system requires data on natural gas demand, supply, and delivery activity for each pipeline serving the state.

The main categories of data are shown in Table 2.

Table 2
Natural Gas System Data Collected by QFER

	Form 6	Form 6A	Form 7
Companies Submitting Data	Gas Utilities	Gas Utilities	Gas Utilities
Category on Natural Gas Data	Send Out and Transport: Core/Noncore	Receipts and Storage	End Use Consumption
Number of Reporting Companies	8	8	6
Detail of Data Filed			
Number of Accounts	No	No	Yes
Energy Use	Yes	Yes	Yes
Revenues/Costs	Yes(Annual only)	Yes (Annual only)	Yes
Rate Category	No	No	Yes
Data Frequency	Monthly/Annual	Monthly/Annual	Annual
Filing Frequency	Quarterly/Annually	Quarterly/Annually	Annually

Form 6

Form 6, *Gas Utility Monthly Sendout (with Annual Revenue)*, provides monthly data that reveals the monthly behavior of the natural gas distribution network in California that is critical in gas supply and price forecasting. Gas sendout data is split into core and noncore categories. These two categories are further disaggregated into broad customer classes.

Form 6A

Form 6A, *Gas Utility Monthly Receipts (with Annual Costs)*, collects data on the monthly characteristics of the natural gas supply network that is a necessary ingredient in natural gas price forecasting. Natural gas purchases and transport are reported by natural gas supply region,

Form 7

Form 7, *Gas Utility Annual Revenue by SIC Code and Rate Category*, provides annual data that reveals the annual costs of natural gas to categories of end use customers classified by the type of natural gas service that they receive.

C. Explanation of Accounting System Extract Method

Utility billing, customer information, and accounting systems contain many variables or fields of information for each customer record. The accounting system extract method subtotals energy use and revenues for a subset of those fields and produces a report of the results.

Utility accounting systems include many fields of information for billing and for servicing customers. Some of these fields would be:

- Service address
- Billing Address
- Account Number
- Rate Schedule
- SIC code
- Participation in direct access/ESP code/ESP billing option/ESP MDMA
- Meter Number
- Weather Zone
- Outage Block
- Monthly Usage
- Monthly Payments

Combining the many fields of information for each customer record with the 12.5 million customers in the state results in very large databases filled with tremendous amounts of data. The purpose of the accounting extract system is to transform this large amount of data into information—selecting a few variables of interest from the many possible fields and aggregating individual customer accounts over those few variables. Many of the fields of information, while important for billing and customer service, are not important for most data analysis and information purposes.

Utilities have routinely used extract systems for their own internal analysis purposes as well as reporting to the California Public Utilities Commission (CPUC), the Federal Energy Regulatory Commission (FERC), as well as the Commission and other local, state, and federal agencies. One of the most frequently produced extract system reports shows the number of customers, electricity usage, and revenues aggregated by customer class. To produce this report, each individual customer must be assigned to a customer class. This assignment is typically done by mapping rate schedules into customer classes. The usage and revenue data for each customer is then subtotaled for each customer class with a count kept of the number of customers in the class.

The Commission's needs for accounting system extract data are very similar to the above example. The Commission requires data on the number of customers, usage and revenues by SIC code and by county. To produce this extract, utilities must assign SIC codes to individual customers and assign customers to counties, usually using a ZIP

code to county mapping. The individual customer record energy use and revenue data is then subtotaled by county and SIC code, with a count kept of the number of customers in each cell, to produce the accounting system extract information that the Commission currently requires.

D. Issues

There are a number of issues related to accounting extract systems that have surfaced in the various workshops that have been conducted to date in this proceeding.

1. Burden of SIC Classification

One requirement of the current extract system is that data be classified, aggregated, and reported by SIC code. Representatives of some ESPs asserted that classifying customers by SIC code is an unreasonable burden since they do not perceive that they have a business interest in including SIC code information for their retail customers in their customer information systems.

In response to these concerns, Commission staff have organized a project with the state Employment Development Department (EDD) to explore whether EDD data can be used to relieve retailers, both utilities and ESPs, of some portion of the SIC code classification burden by using the code assigned by EDD.

This project is in the developmental stages and will not provide definitive answers as to the cost-effectiveness and feasibility of this approach for at least a year. Attachment 1 provides a brief description of the goal of the Commission joint project with EDD and the major steps involved in that effort.

2. Burden of Developing Extract Systems

As mentioned above incumbent utilities have routinely developed extract system reports for internal and external, regulatory purposes and, hence, have already developed the computer software and procedures necessary to produce the reports.

New market entrants, ESPs, on the other hand, do not have existing extract systems in place. Requiring ESPs to produce extract system reports would require them to develop the software and tools needed to produce the reports.

Staff believes that, in this day of high-speed, high capacity computers and sophisticated software, the costs for ESPs of reporting extract systems information would not be excessive. But Staff would like to get a clearer idea of the costs from ESPs themselves.

3. Revenue Data

Two concerns have been raised about the reporting of revenue data. First, ESP revenues may be difficult to disentangle into energy services and other services for those firms selling multiple products to customers. For example, energy commodity services may be sold in conjunction with energy efficient equipment sales. Monthly payments by the

customer would include both the commodity energy payments as well as repayment of capital and installation costs for the installed equipment.

Second, aggregate revenues provide an indicator of the size of a firm, and in combination with other information, might be used to estimate cash flow, profits, etc. For a privately held firm, Commission revenue reporting requirements might be the only source of such information. Consequently, the information reported to the Commission, if accessed by financial markets, could influence stock offerings and general perceptions of the firm.

The Commission uses revenue data, primarily, to calculate prices. Consequently, a decision not to collect revenues should be made in the context of the acquisition of prices by accessing publicly available prices. The CPUC does require registered ESPs to provide prices, terms, and conditions of their products and the CPUC plans to make that price information available to the public. However, it is not clear how accurate these posting will be, both initially and over time. In addition, the CPUC requirement covers only registered ESPs. ESPs that are marketing to large commercial and industrial customers are not required to register and are not required to post prices. These larger customers accounted for over 90 percent of all direct access sales through July 1998. There is no publicly available access to prices for these larger customers.

Staff has had experience with this "publicly available price" option in information reported on the natural gas industry. However, the poor quality and the highly aggregate nature of publicly available natural gas prices have severely hampered and constrained Staff's ability to forecast natural gas costs for some segments of the industry and to perform price elasticity studies and assessments.

Because of problems experienced with publicly available natural gas price data and because of the absence of publicly available price for larger customers, Staff believes that the "publicly available price" option is not viable.

Another option to reporting of revenues would be Commission surveys of end-use customers. There are at least two major disadvantages of using surveys to collect end-use customer price information. First, a voluntary survey is likely to achieve a low response rate, leading to biased results. Second, the costs of collecting end-use customer price information by using surveys are likely to be higher than with mandatory reporting by retailers.

Because of the disadvantages of both the "publicly available price" and survey options, Staff believes that the reporting of revenues requirement should be maintained.

4. Identification of Responsible Entities

With reasonably free entry and exit into the retail market, the Commission will periodically encounter new firms that have to be educated about Commission data collection and reporting requirements. This is already true for some other agencies, such as the State Board of Equalization, whose statutory provisions encompass all retailers. Monitoring of

the industry and educational seminars are needed in order to ensure that all responsible parties are providing the information required.

The Commission, the State Board of Equalization, and cities with utility user taxes have similar needs related to electricity retailer education and identification. This shared need may form the basis for cooperation between these governmental bodies to ensure that all retailers are accounted for and are providing the information required.

5. Enforcement and Compliance

With new market participants and with the reluctance of some utility companies to comply with existing regulations, universal retail data collection and reporting requirements may require the Commission to acquire compliance monitoring and enforcement tools to ensure that regulatory mandates are complied with. The Warren-Alquist Act does contain compliance tools for the petroleum industry data reporting requirements, which were less necessary for the electric and natural gas industries when all consumer data was handled by regulated utilities in a pre-restructuring environment.

6. Confidentiality

In response to concerns raised earlier in the OIR, the Commission has developed revised confidentiality regulation that took effect August 1998. These revisions strengthened protections governing the release of aggregations of confidential data to ensure the individual energy user privacy is preserved. In particular, the revised regulations automatically designate as confidential information derived from energy consumption metering and accounting system extracts that could allow the characteristics of an individual customer to be determined. To preserve privacy, information cannot be reported for a category that contains fewer than three customers or if any one customer in the category contributes more than 60 percent of the load in that category (The 3/60 Rule)⁵.

Although the revised regulations have strengthened the confidentiality protections for extract systems data, there are still some remaining issues that need to be addressed.

First, implementation of the 3/60 Rule under the accounting extract system requires the data provider to designate which cells do not satisfy the 3/60 rule. This is a new requirement for existing utility filers and Staff is interested in discussing the best mechanism for setting up this mechanism.

Second, the issue of how to handle adding two or more non 3/60 cells needs to be addressed. For example, if Utility A reports a cell with 3 customers with usage of 80,10, 10 and Utility B reports the same cell with three other customers with usage of 80,10,10, the cell for each utility is confidential since the largest customer uses 80 percent. But the sum of Utility A and B for that cell is not confidential since the largest customers only use 40 percent of the total. This becomes a more important issue as more entities sell throughout the state.

⁵ California Code of Regulations, Title 20, Section 2507(d)(1).

The previous issues were based on consumer privacy confidentiality concerns. The third confidentiality issue is based on trade secrets concerns, namely, to what extent and to what level of detail should individual ESP sales be reported.

II. CUSTOMER DATABASE TRANSFERS

A. Description

An alternative to the traditional accounting extract method of collecting energy consumption data through the Quarterly Fuel and Energy Report system is the customer database transfer. The entire customer population (for all relevant variables) is simply transferred from the system onto electronic storage media and provided to the Commission. Using database transfers would benefit retailers in three ways. First, the retailers would be relieved of the burden of aggregating their customer billing data into the format required by QFER regulations. The Commission would assume that responsibility. Second, shifting the aggregation burden to Commission staff would relieve UDCs and other retailers of the obligations to analyze consumption data for violations of the 3/60 rule. Third, the database transfers could be used as the sampling universe for survey research of retailer customers. Such a database would obviate the requirement for retailers to provide samples of their customers for each survey research project.

The database transfer would relieve retailers of the burden of aggregating their customer billing data into the format required by QFER regulations. However, even under this system, the issue of SIC code assignment and maintenance still exists. There are three variants of how SIC code assignment and maintenance could be performed.

Option A assigns this responsibility of SIC coding to the retailer as with current QFER regulations. However, the burden of aggregating customers into QFER defined groups is still shifted to the Commission from the retailer.

Option B assigns the responsibility of SIC code assignment and maintenance to the UDC by recognizing that they already have SIC codes assigned to each of their accounts. Under Option B, UDCs should experience minimal additional SIC classification work when compared to Option A in that all existing customers now have an SIC code. The burden on ESPs would be diminished under Option B in that the Commission would not only assume the responsibility of aggregating QFER requirements but also of utilizing the existing SIC classifications assigned to the accounts in the UDC databases.

Option C assigns the responsibility of SIC coding and maintenance to the Commission which would utilize the Employment Development Division's (EDD) data on SIC codes and match those to retailer customer accounts. However, this option is still untested and consideration is dependent on the outcome of the yet to be implemented EDD pilot project. Results from the pilot project will not be available until mid to late 1999. However, if the pilot project proves the method feasible and parties want to proceed with this

option, then the burden of SIC code assignment and maintenance would fall to the Commission. An additional advantage with Option C is that the EDD database would assist in the transitioning to the new North American Industrial Classification System (NAICS) by matching SIC/NAICS codes to customers as such codes are identified and assigned by EDD.

B. Customer Survey Considerations

Developing surveys and drawing survey samples requires an identification of the total population about which information is desired. The ideal universe list would contain every unit or building in the target population without duplication. Further, each unit or building would be shown separately with units not in the target population eliminated. This consideration is critical when performing surveys of sub-populations by building type or geographic area. A comprehensive file containing at least 12 months of billing data, building type, and geographic location for all energy using customers would most nearly meet the requirements for an ideal universe list. This file could be created after receiving copies of each retailer's billing files. Samples drawn from such a compilation of billing files would likely be more representative of the population than samples drawn from other lists. In addition, comprehensive billing files would be easier to compile and likely be much more accurate than alternatives such as compiling commercially available lists into a universe of units or buildings in the target population. Furthermore, because a complete billing file would contain auxiliary information on zip code, rate category, and SIC code, the population can be grouped into categories of interest, thereby improving the efficiency of the sample. Future customer surveys, whether conducted under the auspices of the Commission or other entity such as the California Board for Energy Efficiency (CBEE), will need to have population universes. If the Commission does not have a database consisting of the universe of retailer customers, then the entity conducting customer surveys will need to ask for comprehensive billing files each time a survey is conducted.

Having billing data included as part of the data for the population provides a linkage of survey responses to energy use. This linkage is necessary in order to estimate energy consumption for particular market segments and to relate energy usage to particular appliances, equipment, market transformation programs, and perhaps most crucial to weigh results of surveys into representative data for all energy users. Evaluation of energy efficiency programs is dependent on having this linkage in order to determine the impacts of programmatic efforts. In addition, the computer models needed to develop the Commission's Energy Outlook are dependent on having current and accurate information on energy use by end-use and appliance type. This data is developed through this linkage of billing data and survey results.

C. Implementation Issues

The Commission is familiar with receiving comprehensive billing files from utilities for particular rate classes such as residential or commercial. In the past, some utilities provided such comprehensive billing files for use in identifying survey participants and develop survey respondent weights. However, the issue of confidentiality is extremely

high when dealing with files of this nature. Current confidential data regulations would protect the confidentiality of any comprehensive billing data file. It also may be possible to strip some information from the files before submission to the Commission such as name and address. However, a geographic identifier such as a ZIP code would still be needed and a premise identifier would be needed in order to identify multiple accounts within a single premise. Also, once samples are drawn, there would need to be a means of attaching names and addresses to the survey participants.

III. SCHEDULE FOR RESOLUTION OF ISSUES AND IMPLEMENTATION

Universal data collection is currently scheduled to be discussed at an October 13, 1998 workshop. Parties are requested to be prepared to discuss this paper at that time.

Draft regulations proposing universal consumer information reporting requirements will be published in February 1999, proceed through the regulatory approval process in the spring and summer of 1999, and become effective in late summer 1999.

ATTACHMENT 1

CEC-EDD-Utilities SIC Coding

Purpose: The purpose of this project is to reduce utility and ESP burdens in providing energy consumption data to the Commission and to assist utilities and ESPs in the transition to the North American Industrial Classification System (NAICS).

Results: (1) Agreement with EDD to receive EDD's database of business names and SIC codes. (2) Analysis of accuracy of sample of several small and medium utilities' SIC classifications. (3) Exploration of options for ESPs' SIC coding. (4) Preliminary assessment of transition to NAICS.

Project Critical Milestones:

- (1) Receipt of EDD database. It is not guaranteed that the Commission will be able to receive the EDD database. Although there is general agreement at the Staff level that this is a good project for both EDD and the Commission, EDD's Information Security Officer could not agree to our data request. If we do not receive the EDD database the Commission needs to decide if we want to pursue other sources or drop the project.
- (2) Ability to match businesses across 2 databases in the small utility pilot. If the matching process is too expensive, in terms of PY required, then the project may need to be dropped or its scope reconsidered.
- (3) Accuracy of results. If the pilot studies reveal major discrepancies between EDD SIC classifications and utility classifications, then the project needs to be reconsidered.

Major Initial Activities

Task 1: Get Database of Business Name, Address, Phone Number, and SIC Code. This task involves obtaining the EDD database. The Commission has made a request to EDD but has not yet received approval.

Task 2. Analysis of Small UDCs energy database. This task involves comparing the SIC codes in the EDD database with the SIC codes in a small utility database. This task will involve developing of customer matching procedures and an assessment how well the utility SIC codes match the EDD codes. To achieve this task, a small utility needs to volunteer to be part of this study.

Task 3. ESP SIC Coding. This task would use the customer matching procedures from Task 2 and customer data provided by ESPs to code ESP customers by SIC code.